

REPORT ON MACHINERY.

Port of Glasgow

Received at London Office FRI. 27 JAN 1899

No. in Survey held at Glasgow Date, first Survey 16. Dec. 1897 Last Survey 20 January 1899
 Reg. Book. on the Seven Steamers "Maravian" (Number of Visits 77) Tons { Gross 14572.78
 Net 2902.57
 Master A. Simpson Built at Glasgow By whom built R. Napier & Sons When built 1899
 Engines made at Glasgow By whom made R. Napier & Sons when made 1899
 Boilers made at do By whom made do when made 1899
 Registered Horse Power Owners George Thompson & Co. Port belonging to Aberdeen
 Nom. Horse Power as per Section 28 643 Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3
 Diameter of Cylinders 30"-50"-90" Length of Stroke 54" Revolutions per minute 80 Diameter of Screw shaft as per rule 16.2
 as fitted 17"
 Diameter of Tunnel shaft as per rule 14.67 Diameter of Crank shaft journals 16 1/2" Diameter of Crank pin 17" Size of Crank webs 11 1/2" x 31"
 as fitted 15 1/2"
 Diameter of screw 17-6" Pitch of screw 22-0" No. of blades 4 State whether moveable Yes Total surface 88 sq. ft.
 No. of Feed pumps 2 Diameter of ditto 8 1/2" Stroke 26" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 5 1/2" Stroke 26" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 1 Duplex Sizes of Pumps 9" x 6" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 2 @ 3 1/2" and 4 @ 3" In Holds, &c. 2 @ 3 1/2" and 2 @ 3" dia. in Forward
 Holds. 2 @ 3 1/2" dia. in upper holds
 No. of bilge injections 2 sizes 6" Connected to condenser, or to circulating pump pump Is a separate donkey suction fitted in Engine room & size yes 3 1/2" dia.
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Both
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the discharge pipes above or below the deep water line above
 Are they each fitted with a discharge valve always accessible on the plating of the vessel Yes Are the blow off cocks fitted with a spigot and brass covering plate Yes
 What pipes are carried through the bunkers None How are they protected ✓
 Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times Yes
 Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges Yes
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock ✓ Is the screw shaft tunnel watertight Yes
 Is it fitted with a watertight door Yes worked from Main Deck

BOILERS, &c.— (Letter for record (40)) Total Heating Surface of Boilers 9026 sq. ft. Is forced draft fitted Yes
 No. and Description of Boilers Two triple flue. Double ended Working Pressure 260 lbs Tested by hydraulic pressure to 400 lbs
 Date of test 11.7.98 Can each boiler be worked separately Yes Area of fire grate in each boiler 115.5 sq. ft. No. and Description of safety valves to
 each boiler Two direct spring Area of each valve 17.7" Pressure to which they are adjusted 205 lbs Are they fitted
 with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork 9" Mean diameter of boilers 14-7 1/2"
 Length 19-6" Material of shell plates Steel Thickness 1 1/8" Description of riveting: circum. seams lap 2+3 R. long. seams A. Butt 5 Struck
 Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10" Lap of plates or width of butt straps 1-10"
 Per centages of strength of longitudinal joint rivets 98.5% Working pressure of shell by rules 229 Size of manhole in shell 17" x 12 1/2"
 plate 98.5%
 Size of compensating ring 1/2" Reils No. and Description of Furnaces in each boiler 6 Curries Material Steel Outside diameter 3-7 1/2"
 Length of plain part top ✓ Thickness of plates crown 3 1/8" Description of longitudinal joint welded No. of strengthening rings ✓
 bottom ✓ bottom 3 1/8"
 Working pressure of furnace by the rules 214 Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back ✓ Top 5/8" Bottom 3/8"
 Pitch of stays to ditto: Sides 7/8" x 7/8" Back ✓ Top 7/8" x 7/8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 240
 Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 52.25" Working pressure by rules 194 End plates in steam space:
 Material Steel Thickness 1 1/8" Pitch of stays 16 1/2" x 14 1/2" How are stays secured D. Nuts Working pressure by rules 272 Material of stays Steel
 Diameter at smallest part 2-63" Area supported by each stay 229.5" Working pressure by rules 237 Material of Front plates at bottom Steel
 Thickness 3/8" Material of Lower back plate ✓ Thickness ✓ Greatest pitch of stays ✓ Working pressure of plate by rules ✓
 Diameter of tubes 2 1/2" Pitch of tubes 3 1/2" x 3 1/2" Material of tube plates Steel Thickness: Front 3/8" Back 13/16" Mean pitch of stays 8 1/2"
 Pitch across wide water spaces 14" Working pressures by rules 237 Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 11" x 7 1/2" x 2" Length as per rule 4-2 3/8" Distance apart 7 1/2" Number and pitch of Stays in each 5 @ 7 1/2"
 Working pressure by rules Centre Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked
 separately ✓ Diameter ✓ Length ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivet
 holes ✓ Pitch of rivets ✓ Working pressure of shell by rules ✓ Diameter of flue ✓ Material of flue plates ✓ Thickness ✓
 If stiffened with rings ✓ Distance between rings ✓ Working pressure by rules ✓ End plates: Thickness ✓ How stayed ✓
 Working pressure of end plates ✓ Area of safety valves to superheater ✓ Are they fitted with easing gear ✓

16720 gls

DONKEY BOILER— Description *One cyl. boiler single ended*
 Made at *Glasgow* By whom made *R. Kaper & Sons* When made _____ Where fixed *Spot deck*
 Working pressure *96 lbs* Tested by hydraulic pressure to *180 lbs* No. of Certificate *4709* Fire grate area *29 1/2* Description of safety valves *two direct spring*
 No. of safety valves *2* Area of each *5.9* Pressure to which they are adjusted *90 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Diameter of donkey boiler *9.6* Length *9.6* Material of shell plates *Steel* Thickness *9/16*
 Description of riveting long. seams *double riveted lap* Diameter of rivet holes *3/4* Whether punched or drilled *Drilled* Pitch of rivets *3 1/2*
 Lap of plating *6 1/2* Per centage of strength of joint *75* Rivets *72.2* Thickness of shell *9/16* plates *9/16* Radius of do. *✓* No. of Stays to do. *✓*
 Dia. of stays *✓* Diameter of furnace *2.9* Bottom *✓* Length of furnace *7.0* Thickness of furnace plates *1/2* Description of joint *Welded* Thickness of furnace crown plates *✓* Stayed by *✓* Working pressure of shell by rules *91 lbs*
 Working pressure of furnace by rules *96 lbs* Diameter of uptake *✓* Thickness of uptake plates *✓* Thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *One propeller shaft, 1/2 crank shaft, two propeller blades (bronze), one Thomson's patent shaft coupling, eight coupling bolts & nuts, one piston rod common to the three cylinders, one set Rambottom rings for each piston, and all the usual spare gear.*

The foregoing is a correct description,
T. Rafice Manufacturer.

Dates of Survey while building
 During progress of work in shops— 1897—Dec. 16. 18. 25. Feb. 17. 19. Mar. 15. 16. 19. 30. Apr. 2. 9. 18. 19. May 3. 13. 17. 20. 23. 26. 30. June 2. 9. 13. 15. 17. 19. 22. 24. 27. 29. 30. July 1. 5. 8. 11. 12. Aug. 1. 3. 5. 6. 8. 10. 15. 19. 24. 26. 29. 30. Sep. 2. 8. 13. 17. 20. 22. 27. 29. Oct. 5. 11. 18. 21. 27. Nov. 1. 5. 14. Total No. of visits *277* 1899—Dec. 2. 5. 26. 27. Jan. 10. 11. 12. 13. 16. 20.

General Remarks (State quality of workmanship, opinions as to class, &c.)
ENGINES—Length of stern bush *5.9* Diameter of crank shaft journals *15.45* as per rule *16 1/2* Diameter of thrust shaft under collars *16 1/4*
BOILERS—Range of tensile strength *29-32* Are they welded or flanged _____ **DONKEY BOILERS**—No. *1* Range of tensile strength *27-30*
 Is the approved plan of main boiler forwarded herewith *Yes* Is the approved plan of donkey boiler forwarded herewith *Yes*

The machinery of this vessel has been constructed under Special Survey, & is of good materials & workmanship. It has been severely fitted on board, & satisfactorily tested under stress.

One of Hooper's 120000 cub. feet duplex dry air Refrigerating machines has been fitted on board, for refrigerating the holds & Orlop, for description of insulation see accompanying report.

The electric lighting installation has been fitted by Messrs Claude Hamilton, Glasgow.

The machinery of this vessel is eligible, in my opinion, to be classed, & to have record of **+LMC 1-99** in the Register Book (see letter to Secretary re circulating pump valve chamber door, attached hereto)

Approved plan of main steam pipes & report on cast steel main steam pipes forwarded herewith.

The amount of Entry Fee... £ 3 : :
 Special ... £ 52 : 3 :
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) £ : :
 When applied for, 1911-18-99
 When received, 20/1/18-99

W. H. C. Wren
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
 It is submitted that this vessel is eligible for THE RECORD L.M.C. 1.99. F.D. Electric Light

Committee's Minute
 Assigned

MACHINERY CERTIFICATE
 WRITTEN 2.2.99

Lloyd's Register of Shipping
 2.2.99

Glasgow

Certificate (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.